

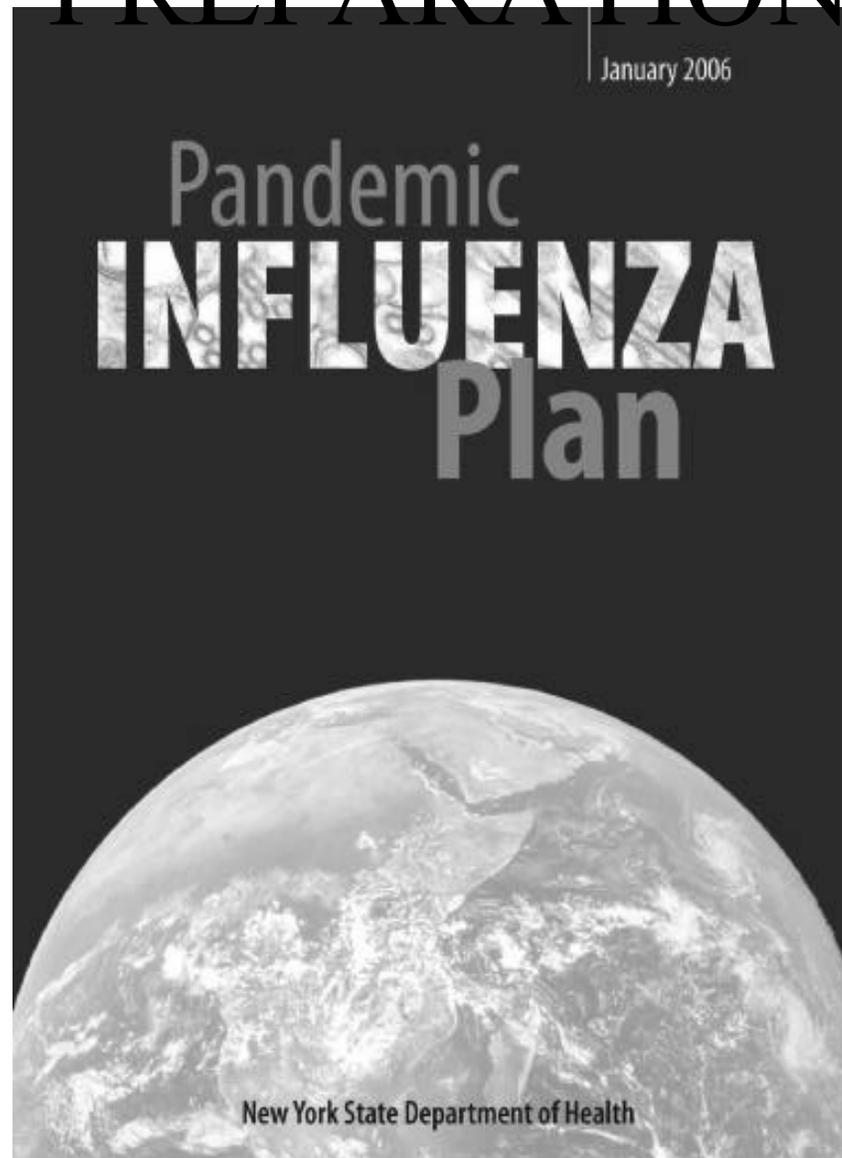
# PLANNING FOR HUMAN PANDEMIC INFLUENZA

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# US, NYS, ERIE COUNTY PREPARATION



# WHO

## Principal Strategies



- To counter pandemic influenza:
  - Interrupt the transmission of disease among species (e.g., avian, human)
  - Develop and produce a vaccine
  - Stockpile the antiviral drugs

# Implications for Humans

- Pandemic could cause  $> 2.0-7.4$  million deaths worldwide (WHO estimate)
- Impact health and social services
- Interrupt essential services
- Economic loss
- Social disruption
- Panic and suffering

# Pandemic Flu Planning Assumptions

- Expected, but arrives quickly
- Prolonged/recurrent – 2 or 3 waves lasting 5 to 10 weeks
- High attack rates because of widespread susceptibility
- Simultaneous outbreaks
- Limited/delayed vaccine & antiviral medications
- Altered standards of care (health care rationing)
- Health & public health overwhelmed
  - Health care providers higher exposure risk
  - Significant absenteeism
  - Many worried well
- Other critical infrastructure worker shortages
- Potential social disruption
  - Potential high mortality
  - Not typical de-escalating event and can't see, hear, know threat is gone

# Human Infection

- No natural immunity
- Potential for severe morbidity
- Potential for high mortality
- Incubation period 2 – 8 days

# Mode of Transmission

- Droplet
- Aerosolization
- Direct contact with contaminated tissue, feces, and respiratory secretions
- Direct inoculation of oral and/or nasal mucosa



# Unique viropathology in human cases of avian influenza

- Diarrhea a common symptom
- Nearly 50% case-fatality rate
- No confirmed sustained human-to-human transmission
- Virus lodges in lower respiratory tract, reducing its contagiousness

# Clinical Course

- ILI-fever, sore throat, cough, myalgia, malaise
- Viral pneumonia (diffuse multi-focal infiltrates)
- Acute respiratory distress syndrome
- Sepsis syndrome without bacteremia
- Multi-organ failure

# Duration Of Isolation

- Isolation precautions for 14 days after onset of symptoms until an alternative diagnosis is established or until diagnostic test results indicate that the patient is not infected with influenza A virus

# Disinfection

- Sensitive to most detergents and disinfectants
- Readily inactivated by heating and drying
- Flu viruses are well-protected from inactivation by organic material
  - Complete removal of all organic material is part of any effective disinfection procedure.

# Threat of Disease in Erie County

	Moderate (1958/68 – like)	Severe (1918 – like)
Illness	270,000 (30%)	270,000 (30%)
Outpatient care	135,000 (50%)	135,000 (50%)
Worried well	?	?
Hospitalization	2,700	29,700
ICU care	402	4,455
Ventilators	203	2,236
Deaths	627	5,709

# Public Health System Activities

- Policy
- Risk communication
- Surveillance, epidemiology, & case finding
- Laboratory analysis
- Disease control including infection control, quarantine, isolation, & other social restrictions
- Workforce recruitment, protection, training, & education
- Equipment & supplies
- Mass vaccination & prophylaxis
- Mental health
- Mass care
- Mass fatality

# Policy

- Practical, legal, ethical, financial, political implications
- Best when widely discussed with citizenry pre event
- Ideally, common policy across jurisdictions
- Do the most good, for the most people
  - Military or disaster approach
  - Rationing may not be acceptable to Americans
- Although difficult, may be important to make difficult decisions early in event
  - Public health vs. individual patient care decisions

# Risk Communication

- Change behavior
- Should begin pre event
- Putting things into perspective
  - public's perception of disease prevalence is by number of times they see it in the media
- Respiratory etiquette
- Hand washing
- Avoid hand to mucous membrane contact
- Stay home if sick
- Stockpile non-perishable food, medicines, etc.

# Surveillance, Epidemiology, & Case Finding

- Syndromic surveillance
  - Sentinel practices and clinics
  - Emergency departments
  - Pharmaceutical sales
  - Sewage flow rates
  - Veterinary
- Report suspect ILI cases (temp  $> 38^{\circ}$  plus sore throat, cough, or dyspnea) to LHD
  - Mild to moderate ILI, or hospitalized with pneumonia or ARDS, and
  - Novel influenza exposure within 10 days – occupational, travel, birds, = 3 ft case contact
- Case contact (generally 1 day prior to illness onset) finding probably effective only early on
- Epidemiology resources shift to more global epidemiology such as geographic distribution, investigating morbidity & mortality

# Laboratory Analysis

- Laboratory Response Network (LRN)
  - BioSafety Level (BSL) 3
  - NYS DOH Wadsworth & eventually Erie County DOH
- RT-PCR testing & possibly cell culture
- Specimen
  - Collected within 72 hours of symptom onset
  - Dacron or rayon swabs with plastic or wire shaft
  - Nasopharyngeal aspirate, wash, swab, & oropharyngeal swab, & acute & convalescent (2 to 3 weeks after acute & >3 weeks after illness onset) serum sample
  - Lower respiratory tract secretions only with appropriate PPE
- Pandemic phase
  - Capacity and role for laboratory testing probably less
  - Testing severe cases and antiviral failures for resistance

## Prevent ill persons from infecting others

- “...under its delegated authority, the CDC is empowered to detain, medically examine, or conditionally release individuals reasonably believed to be carrying a communicable disease”
- Feds generally defer to local and state authorities

*WNYPHA public health priority guidelines  
for the preservation of society in the face of  
a significant public health emergency*

Therefore, be it resolved that the Western New York Public Health Alliance, Inc hereby unanimously adopts the following prioritization for limited or adequate healthcare resource deployment to be invoked only in the face of a significant threat to society:

*WNYPHA public health priority guidelines  
for the preservation of society in the face of  
a significant public health emergency*

1. Acts to preserve and maintain critical societal infrastructure
2. Acts to contain the threat including control of the spread of a disease
3. Acts to minimize individual mortality (death)
4. Acts to minimize individual morbidity (disability)

# Quarantine, Isolation, & Other Social Restrictions

- Quarantine vs. isolation
  - Home, hospital, other setting
  - Probably effective only early on
- Personal vs. property quarantine
- Least restrictive means
- Right to be heard
- Logistical and tracking challenges
- Other social restrictions
  - Curfews
  - Cancellation of mass gatherings such as sporting events, movies, public meetings, concerts, religious ceremonies, funerals, school

# Infection Control

- Standard & droplet precautions
  - Surgical mask for patient
  - Spatial separation 3 ft
  - Private room/cohort
  - Airborne Infection Isolation Room (AIIR)
  - Patient movement only for essential services
  - Duration of illness & minimum 5 days from symptom onset
- Airborne precautions
  - Gloves, gowns, face/eye protection, N95 or other appropriate particulate respirator
  - Aerosol generating procedures (intubation/extubation, suctioning, nebulizer treatment, bronchoscopy)
- Contact precautions for diarrhea

# Workforce Recruitment, Protection, Training, & Education

- Paid & volunteer workforce
- Cross train staff in advance
- PPE
- Staff not to report to work if ill - unless really needed
- Assign recovered staff to care for infected patients
- Potential issues
  - Out of title work assignments
  - Altered work sites and hours
  - Outsourcing
  - Absenteeism
  - Worker's compensation
- Doctors & nurses vs. alternate health care providers
  - Dentists
  - Podiatrists
  - Pharmacists
  - Chiropractors
  - National Ski Patrol

# Workforce Recruitment, Protection, Training, & Education

- Volunteers
  - Credentialing
  - Just in time training
  - Liability
    - SMART/MRC
    - ESAR-VHP
    - Public Officers Law
- Remember workers’/volunteers’ families
  - Childcare
  - Fear bringing disease home
  - Prophylaxis/vaccination



# Equipment & Supplies



- SNS, VMI, MERC, local caches
- ChemPack
- Ventilators
- Coordinated by county Emergency Operations Centers (EOC)

# Mass Prophylaxis and Vaccination



SMALLPOX OUTBREAK NYC 1947

- Points of Dispensing (PODs) & HPODs
  - Pills within 2 days
  - Shots within 5 days
- Licensed protected procedures
- Documentation (?IND)
- Series of shots
- Monitor adverse reactions
- Hard to reach populations
- Non-medical approaches
  - USPS
- Who goes first, who goes last?

# Potential Erie County Scenario

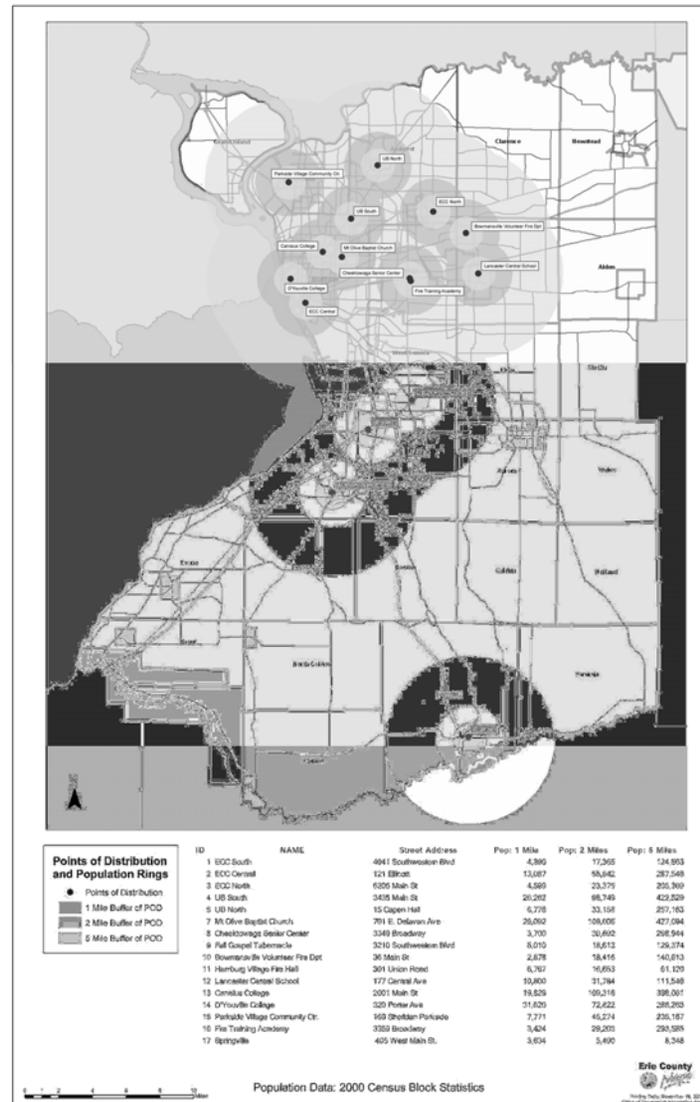
- 950,000 vaccinated
- 5 days
- 15 PODS
- 24 hours/day
- 3 shifts/day
- 6,865 staff/shift (plus security)



# Antivirals

- Treatment
  - Ideally within 48 hours of symptom onset
  - 5 days, bid, 10 pills
- Prophylaxis
  - Qd, 40 pills
  - Supplies may not be adequate
  - Monitor side effects (MedWatch)
  - Potential development of resistance
  - Probably only practical early on

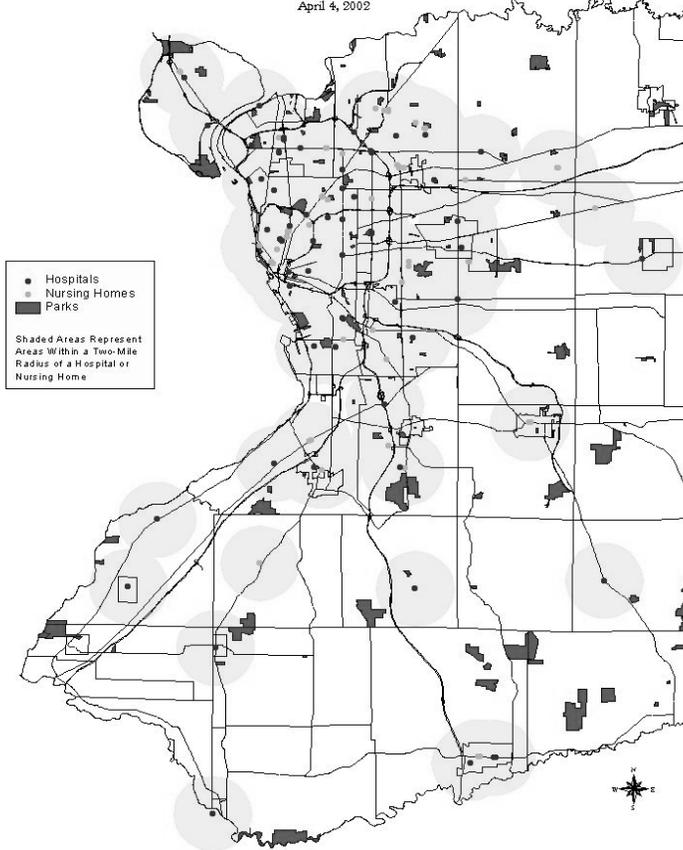
# Erie County PODs



# Mass Care

Locations of Hospitals and Nursing Homes in Erie County

Pat Trawinski  
April 4, 2002



- Hospitals, nursing homes, home care agencies, doctors, emergency medical services
- Families
- Surge capacity
- Diversion



# Mental Health

- Emotions may include guilt, grief, stress, exhaustion, anger, & fear
- Public
  - Including worried well
- Providers & responders
  - Build & sustain personal resilience
  - Alliances with faith-based, CBOs and NGOs with expertise
  - Family and personal concerns may impact ability to perform job
- May be especially critical in:
  - Prolonged events
  - Large number of casualties
  - Youth casualties
  - Biological event that can't be seen, heard, or measured

# Mass Fatality

- Infectious bodies
- Refrigeration capacity
- Body bags
- Body disposal
- Funerals

# Community Activities

- Businesses
- Educational institutions
- Special needs groups
- Faith-based groups
- Government officials
- Allied health professionals

# Primary Care Activities

- Report suspect cases
- Protect yourself, staff, & patients
  - Educate (respiratory etiquette, hand washing, infection control)
  - PPE for staff
  - Monitor staff for ILI, mental health, exhaustion
- Evaluate your patients
  - Alternate triage physical locations, hours, protocols
  - Mask all ILI patients and individuals with them
  - Send laboratory samples
- Treat your patients considering altered standards of care
  - Calm worried well
  - Educate, treat & street pandemic flu & “traditional” conditions
  - Hospitalize only when appropriate
- “Volunteer” excess staff capacity to hospitals or public health initiatives
- Plan for staff who refuse to care for influenza patients

# Implications for Business

- A pandemic could last many months with several waves
- Widespread impact
- Duration unpredictable
- Primary effect is on staffing levels
- Supplier/contractor issues

# Implications for Business

- Human Resource Issues
  - Identify essential services and staff
  - Employer responsibility for health and safety of workers
  - Plan for business/workplace closure
    - Short-term planning (health focus)
    - Succession planning
  - Identify workplace health and safety manager

# Health and Safety Manager Considerations

- Establish a system to monitor employee illness
- Establish absence and return to work policies
- Ensure workplace is supplied with PPE, tissues, masks, personal hygiene and cleaning products

# Implementing Public Health Strategies in the Workplace Setting

- Educate employees (fact sheets, notices, policies...)
- Inform employees of differences in symptoms between influenza and the common cold
- Ensure communications plan is in place
- Restrict workplace entry of people with influenza symptoms

# Implementing Public Health Strategies in the Workplace Setting

- Encourage personal hygiene and cleaning
- Increase social distancing
- Implement protective barriers
- Consider policies to encourage the ill to stay at home
- Consider travel restriction policies
- Activate contact tracking of employees

# Summary

- Effective planning and response to pandemic influenza is dependent on a well-coordinated multi-strategy, multi-disciplinary effort between local, regional, state, federal, international governmental and business partners

# USEFUL RESOURCES

- [www.pandemicflu.gov/](http://www.pandemicflu.gov/)
- [http://www.redcross.org/services/prepare/0,1082,0\\_239\\_,00.html](http://www.redcross.org/services/prepare/0,1082,0_239_,00.html)
- [www.erie.gov/health](http://www.erie.gov/health)